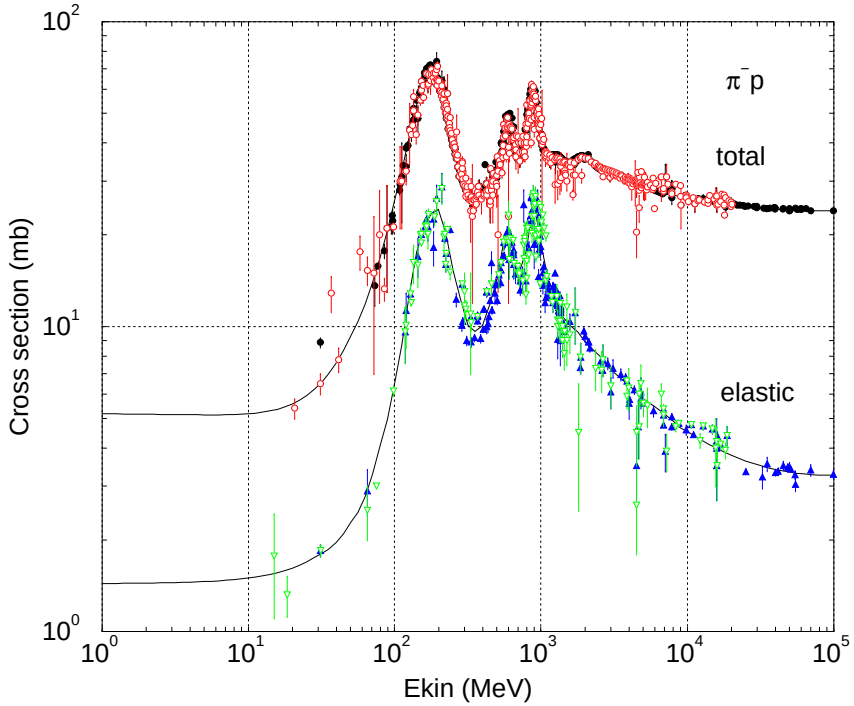
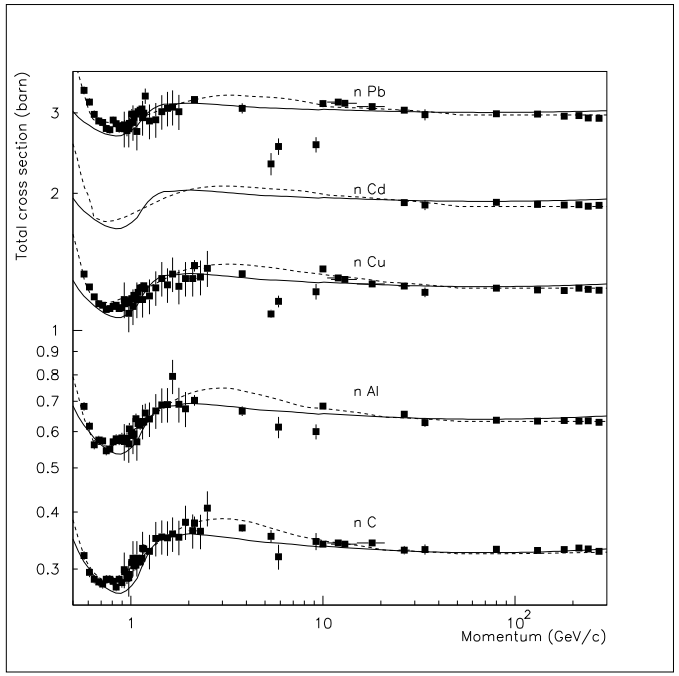
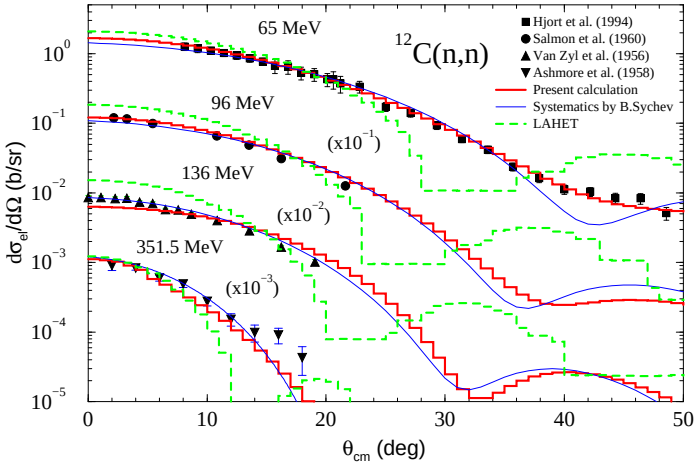
MARS X-SECTIONS *vs* DATA

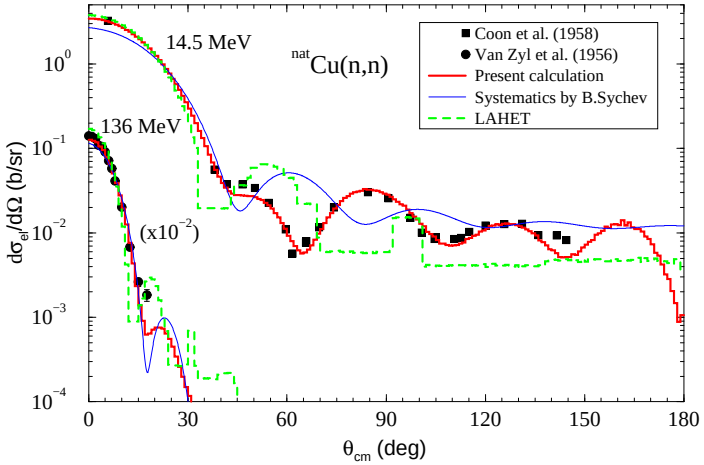




MARS cross sections in comparison with experimental data: (a) σ_{tot} and σ_{el} for $\pi^- p$ collisions as a function of pion kinetic energy; (b) σ_{tot} for neutrons *vs* beam momentum.

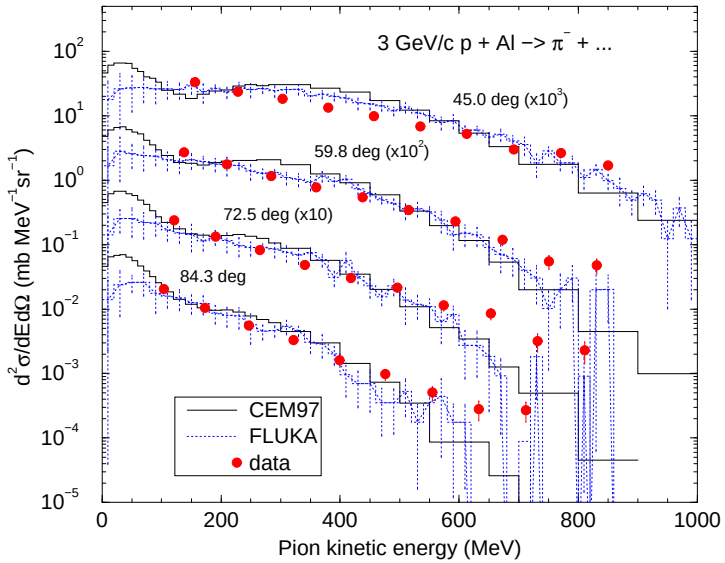
MARS14 ELASTIC SCATTERING (1)

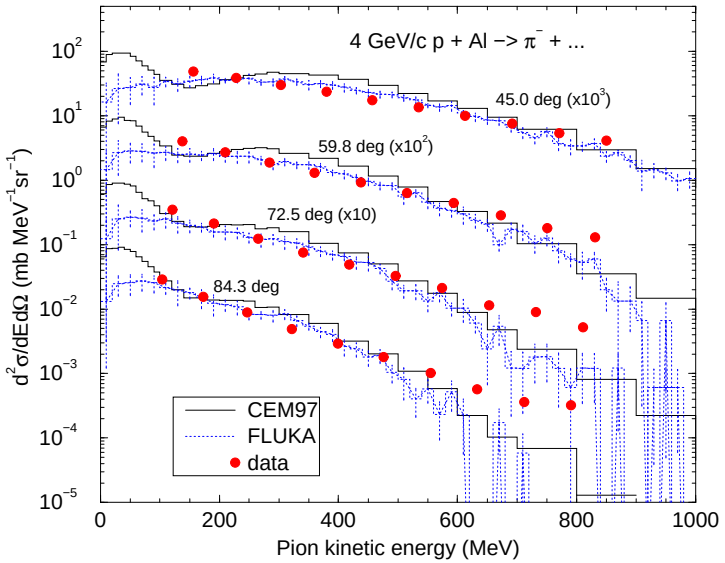




MARS elastic model at E<5 GeV is based on evaluated nuclear data from LA-150, ENDF/HE-VI and Sukhovitski, Chiba et al supplied with phenomenology where needed. At E>5 GeV it is a set of phenomenological models.

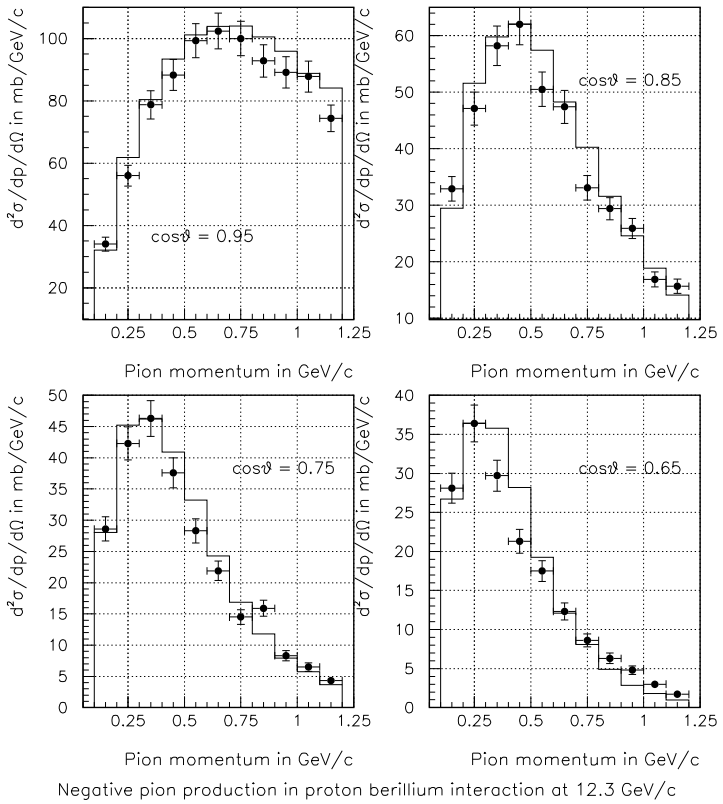
MARS/CEM AND FLUKA *vs* DATA



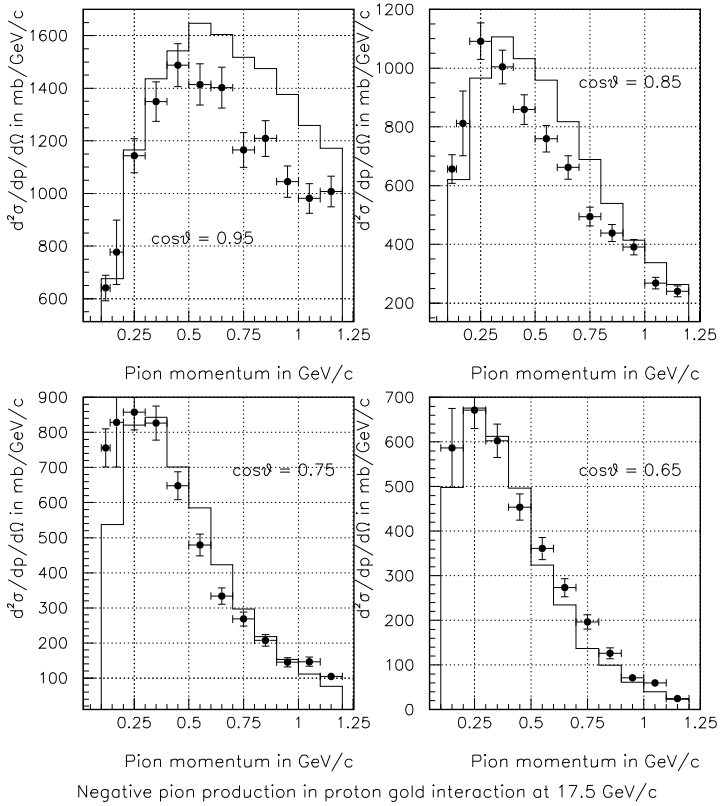


Comparison of MARS/CEM and FLUKA calculated pion spectra to data by Chiba et al. at incident proton momenta of 3 and 4 GeV/c on aluminum nucleus

MARS14 *vs* E-910 DATA



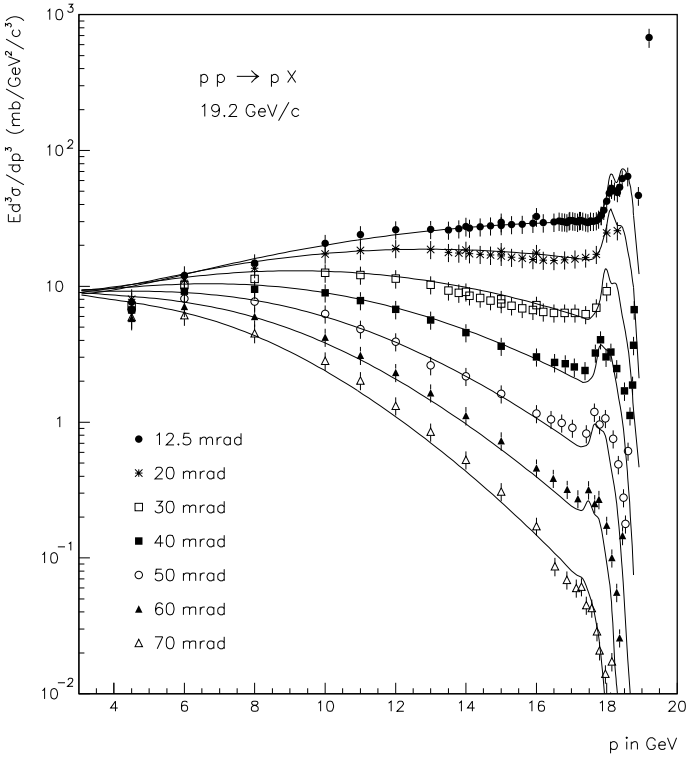
Negative pion production in proton berillium interaction at 12.3 GeV/c

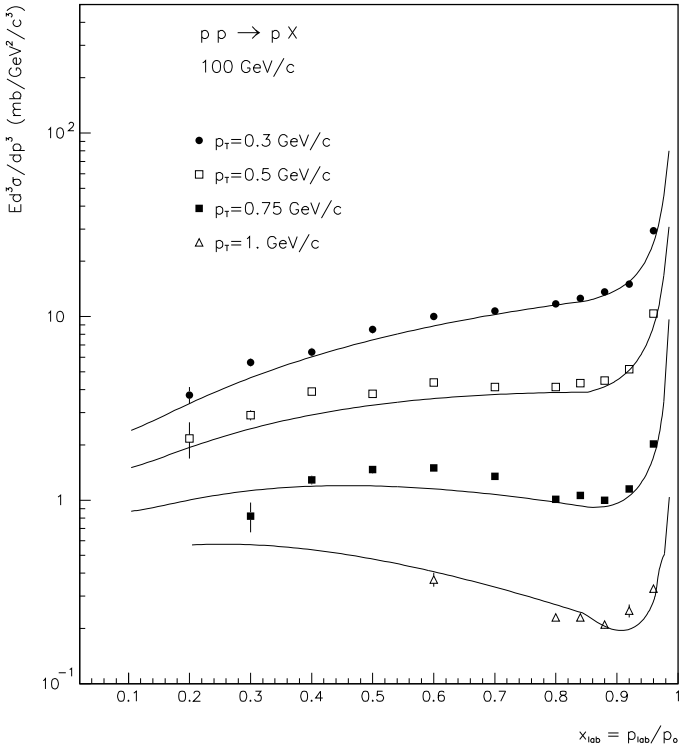


Negative pion production in proton gold interaction at 17.5 GeV/c

π^- spectra in *pBe* at 12.3 GeV/c (left) and in *pAu* at 17.5 GeV/c (right) as calculated with MARS (histogram) and measured in the BNL E-910 (symbols).

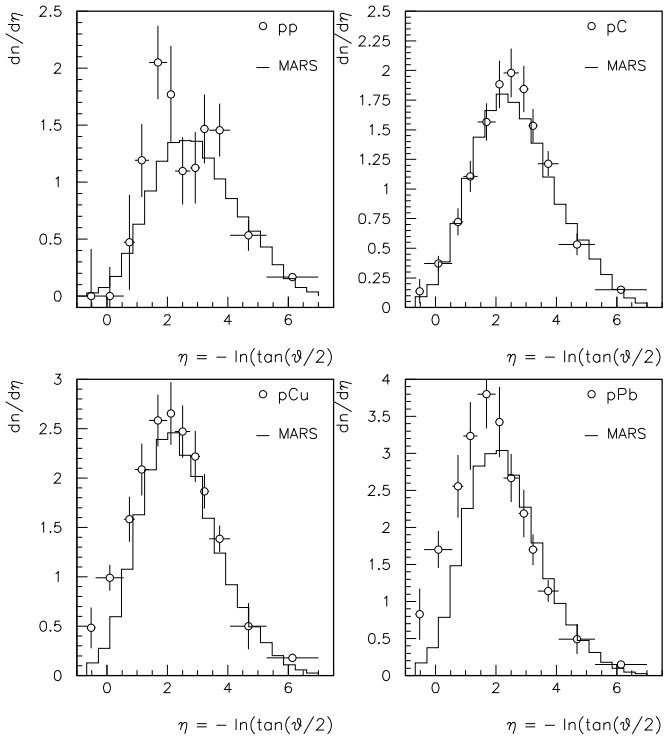
PROTON PRODUCTION

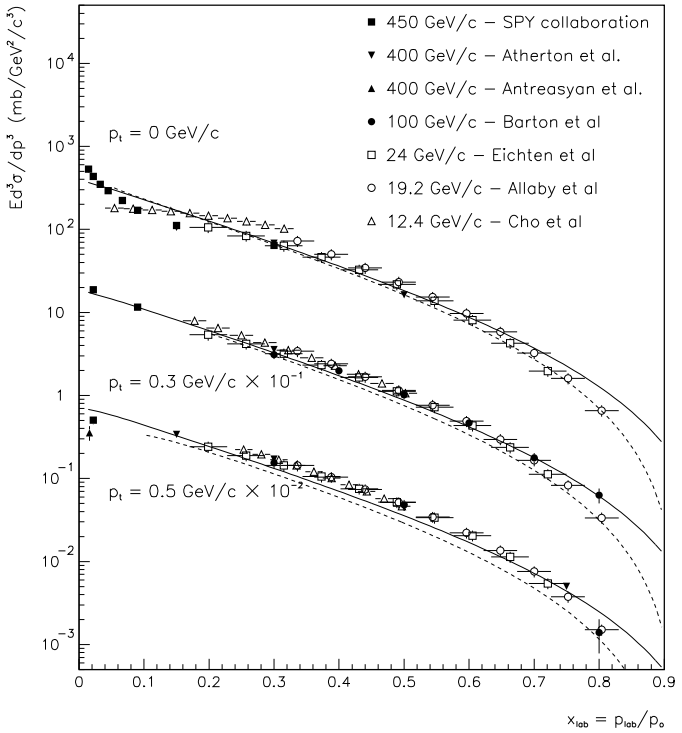




Proton spectra in *pp*-collisions at 19.2 GeV/c (left) and 100 GeV/c (right) as calculated with MARS (lines) and measured (symbols).

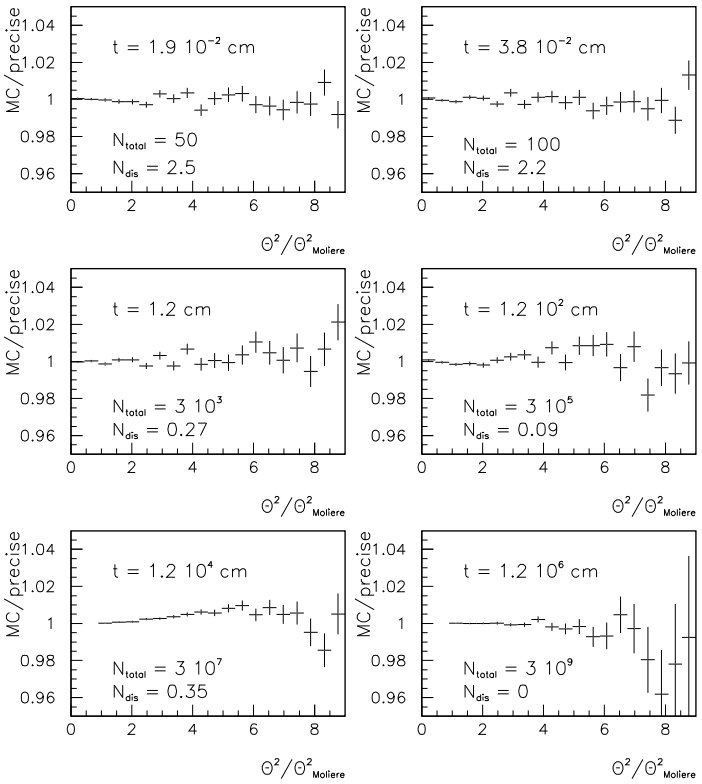
MARS14 *vs* DATA

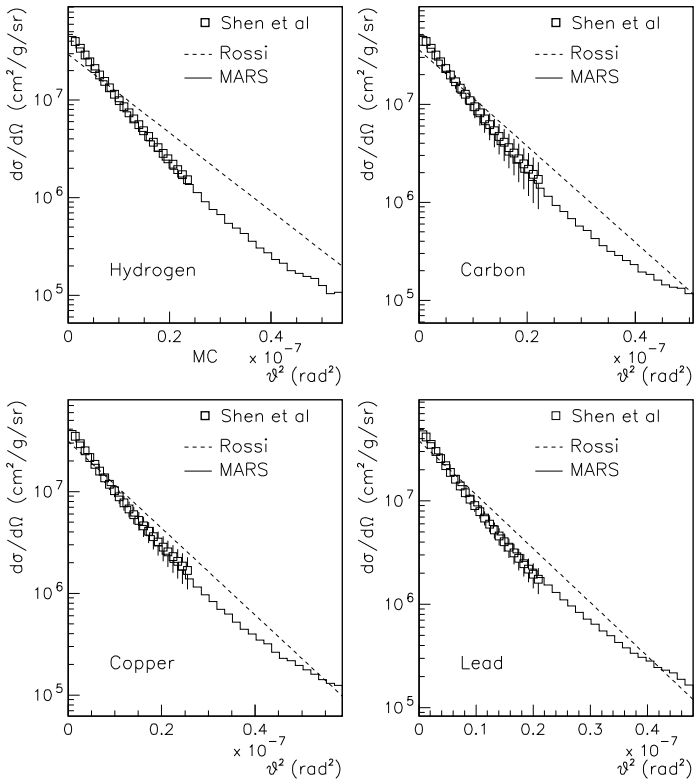




Charged particle ($\beta > 0.85$) production in *pA* interactions at 50 GeV (left) and π^+ production in *pBe* interactions at 12.4 to 450 GeV/c (right) as calculated with MARS (lines) and measured (symbols).

MULTIPLE COULOMB SCATTERING (2)





Angular distribution after a lithium absorber (left) and after 0.05 X_0 of different absorbers irradiated by 70 GeV protons (right).